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TO : The Files - [REDACTED] DATE: 29 December 1955

FROM : [REDACTED]

SUBJECT: Trip and Progress Report - Contract RD-91 - SA [REDACTED]

1. On December 21 and 22 the writer visited the [REDACTED] Philadelphia, and the [REDACTED] to discuss the progress of subject contract. Those contacted were:

[REDACTED]

2. One principal purpose of the trip was to determine the effect of delaying the ammendment to the contract which would permit the inclusion of a calibration system into the antenna unit and of incorporating antenna filters. [REDACTED] has previously submitted all required papers, the technical proposal, and the technical action request. While here, action has been taken to expedite this approval. [REDACTED] had requested that approval be granted by 15 December in order to meet a 30 April delivery schedule. At present it is expected that [REDACTED] will not yet have the authority to proceed until mid-January 1956. After discussing this problem with the [REDACTED] and the [REDACTED] people, the writer understands that unless the delay becomes excessive, the only effect will be a further extension of the delivery schedule. This extension is caused by the delivery schedules which suppliers have stated is required for certain items necessary to this equipment. The writer further understands that there will be no undue problems caused by personnel and engineering assignment at either company and that design work is going ahead with the assumption that this ammendment to the contract will be effected in the near future.

3. [REDACTED] raised several questions relative to the design of amplifiers for the console.

a. [REDACTED] requested information relative to the type of camera which might be used for unattended operation of this equipment. This information was necessary in order to provide the proper type of pulse required for energizing the camera equipment. The writer took the position that if the [REDACTED] equipment was capable of energizing a relay, which would be self-contained, and capable of carrying one ampere at 24 volts, that any type of photographic

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equipment, or other device, could be actuated by this relay. In lieu of other specific information, [] will provide this relay.

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b. [] desired to know the output impedance of power required to operate the headphones. The writer requested the amplifier deliver .5 mw across 1000 ohms impedance.

c. Inasmuch, as the Techtronic oscillographs are not available as pulse-analyzers, [] desired to know what type would be used. The writer has had discussions with SPD who have stated that the equipment to be substituted for the Techtronic will be a piece of Navy gear, the RDJ-1. The writer was able to obtain instruction manuals which were carried to Philadelphia where they were examined for the necessary engineering information. It was noted that the RDJ requires a negative pulse for analysis. The writer requested that in providing this negative pulse from the console, that provision be made to switch and deliver a positive pulse for possible use with future equipment.

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d. Information was requested regarding the type of recorders that would be used. The writer stated that in all likelihood, Ampex series 800 units will be used. A further discussion concerning recorder amplifiers ensued, and according to available literature, Ampex is able to supply three types of amplifiers: an amplifier for pulse width modulation, an amplifier for FM type recording, and an amplifier for wide frequency direct recording. The writer left the decision of which of these types of amplifiers to use with the [] people inasmuch as they have the intimate knowledge of their own equipment and how it performs. It was felt that they would be in a better position to recommend which type of amplifier would best fit the needs. This [] agreed to do provided we furnish them with the types and characteristics of anticipated signals.

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4. Attachments 1 and 2 are minutes of meetings between the writer and the Contractor of an earlier meeting. Attachment 3, minutes of the meeting between [] on 16 December 1955. Paragraph 7 of attachment 3 point out several questions which the Contractor would like answered relative to the equipment. There was a discussion of these particular points during this meeting of 22 December 1955.

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a. Effect of sloping the low-band dipoles to follow the configuration of the antenna super-structure. It was stated that if the slope did not materially effect the pattern of the antennas, that the slope would be permissible.

b. Questions relative to height of low-band dipoles above cabin top, location of the console unit on ship to determine cable runs

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and locations, method of mounting antenna super-structure to cabin top, were answered by the writer who stated that it was desired that the optimum design for the entire structure be made which would best effect camouflage. It would then become our responsibility to properly mount this item on the craft. It was further stated that the length of cable runs would be no problem as the installation team could cut and fit the cables as needed.

c. Color of the radome was discussed. In lieu of specific information, it was felt that a ^{gray} radome which conforms to military specifications would be acceptable.

d. Desirability, for maintenance purposes, of a power socket and availability of lighting power from ship's supply. The writer stated that sockets for such purposes should be provided from the ship's power. The light to be operated from the primary 24 volt mains and a socket for soldering iron to be operated by the ship's 110 volt AC mains.

5. On 22 December the writer in company with Mr. [] visited the []. It was determined that antenna development work is satisfactory. There is still some question as to the desirability of substituting an [] Helix for an NRL horn in the frequency range of 4.5 to 10 kmc. [] stated that the two types of antennas would be further evaluated and that a decision should be possible within the next two weeks. Certain horns had been received from the suppliers of which one was a 20 to 40 kmc unit built according the NRL specifications. [] does not have test facilities to determine the characteristics of this unit at these frequencies and requested information relative to Contractors or other firms who might have this capability. The writer expressed the desire to explore the possibility of having NRL Labs here in Washington run this test and therefore brought the horn back. It is believed that NRL would be interested in running this test to determine the relative merits of their own antenna in comparison to this one as NRL uses an electro-forming process to make their horns, while this is a fabricated unit, and much cheaper to make.

6. Back at the [] plant, a breadboard circuit of the CRT DF units had been built. This breadboard setup is representative of a single channel within any of the nine oscilloscope bands and consists of a pulse-stretcher and other amplifiers for presentation of voltages to the plates of the CRT. It was noted that a satisfactory oscilloscope pattern was obtained with pulse widths as low as one micro-second at a repetition rate of 50 cycles.

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Below these points, the pattern tended to decrease in brilliance. Additional work will be accomplished to alleviate this condition. In general, however, the performance of the system appear to be quite satisfactory.



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Attachments as above

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